REMARKS

The Examiner is respectfully requested to enter the amendments presented in this paper, and to reconsider and withdraw the outstanding final rejections based on the following remarks.

Examiners Nguyen and Pham are thanked for conducting an interview regarding this application on April 14, 2004.

Claims 1-3, 5, 7-11, 13, 15-18, 20, 22-27 and 29-33 are rejected under 35 U.S.C. §102(e) in view of U.S. Patent No. 6,325,492 to *Koitabashi et al.* Claims 6, 14, 21 and 28 were indicated to be allowable but for their dependance from rejected claims.

Claims 9 and 17 have been amended to more clearly recite together with the other claimed features that both image forming droplets and smoothing droplets are ejected from the same nozzle.

As set forth in the previous response, *Koitabashi et al.* discloses an ink jet printing apparatus having a multi-value printing mode and a smoothing mode.

In the multi-value printing mode different size image forming droplets are ejected from the same nozzle as the ejection amount mode is switched between large, medium and small depending upon the density data of each pixel. See Column 26, lines 26-28. Figure 44 also shows a multi-value printing mode where the ejection amount mode is switched between large, medium and small depending on the multi-value data for each ejection opening.

The smoothing mode is separate from the multi-value printing mode. During smoothing, some ejection openings eject image forming droplets, and other <u>different</u> ejection openings eject smoothing droplets that are positioned adjacent to the image

forming droplets. See column 25, lines 46-55. *Koitabashi et al.*, specifically states that the ink jet printer performs smoothing by ejecting image forming droplets and smoothing droplets from different nozzles.

Claim 1 defines an ink jet printer ejecting a plurality of kinds of ink droplets of different sizes from a single nozzle, the printer including a smoother for performing a smoothing process using a dot smaller than a dot forming the image wherein the smaller dot and the image forming dot are ejected from the single nozzle, and a controller for controlling the smoother to print a center of the smaller size dot close to a center of the image forming dot at a distance smaller than the pitch of the image forming dots.

The Examiner continues to allege that in column 27, lines 5-7; column 25, line 45 to column 26, line 17; and Figure 43, *Koitabashi et al.* discloses the invention of Claim 1. However, *Koitabashi et al.* does not disclose at least a smoothing method or apparatus that ejects both smoothing droplets and image forming droplets from the same nozzle.

Koitabashi et al. discloses that it is possible to vary the ejection amount of image forming droplets during successive ejections in multi-value printing modes but does not disclose smoothing by ejecting both image forming droplets and smoothing droplets from the same nozzle. In fact, at column 25, lines 51-55 (emphasis added), *Koitabashi et al.* specifically discloses that, "upon performing smoothing, it is desirable to make the dots to be formed in the smoothing mode by reducing the ejection amount to be ejected through the additional ejection openings than that set for the ejection openings to perform printing."

In summary, *Koitabashi et al.* not only fails to disclose ejecting both image forming droplets and smoothing droplets from a single nozzle during smoothing, but also clearly discloses that during smoothing the image forming droplets and smoothing droplets do not eject from the same opening, thus teaching away from the claimed invention.

With respect to Claim 9, the Examiner alleges that Figure 43 of *Koitabashi et al.* discloses a printer comprising an ink jet head ejecting a plurality of kinds of ink droplets of different sizes from a single nozzle, and a controller for changing a distance between the centers of adjacent dots thereby to change the printing position of the dot based on the size of the dot in printing said plurality of kinds of dots.

Claim 9 has been amended to more clearly define that an ink jet head ejects a plurality of kinds of ink droplets, the plurality of kinds of ink droplets including smoothing and image forming droplets, and that the controller is for changing the position of smoothing dots.

It is respectfully asserted that Figure 43 fails to disclose an ink jet head ejecting smoothing droplets and image forming droplets of different sizes from a single nozzle together with the other features recited in Claim 9. As Figure 43 merely illustrates dots of different sizes, there is no suggestion that the dots were created by a single nozzle. Also, there is no evidence of such in the specification as, when referring to smoothing in column 25, lines 53-55 (emphasis added), *Koitabashi et al.* discloses "reducing the ejection amount to be ejected through the additional ejection openings than that set for the ejection openings to perform printing." Also, in column 25, lines 47-50 (emphasis added) *Koitabashi et al.* discloses performing "smoothing by employing the ejection openings other than the ejection openings

used for printing in 360 DPI or 240 DPI, with respect to the dot data of 360 DPI or 240 DPI." Thus, Figure 43 does not disclose ejecting both image forming dots and smoothing dots from a single nozzle as recited together with the other features in Claim 9.

Claim 9 also discloses a controller for changing the distance between the centers of adjacent dots thereby changing the printing position of at least the smoothing dots based on the size of the dot in printing said plurality of kinds of dots. Figure 43 fails to disclose at least this feature together with the other features recited in Claim 9. Figure 43 merely shows dots of different sizes and positions, and does not disclose that a controller changes the distances between the centers of the adjacent dots based on the size of the dots. Further, in contrast to the Examiner's interpretation of Figure 43, the specification specifically discloses in column 26, lines 9-12 that "the interpolating dot data is determined depending upon presence and absence of the original dot data in the vertical and lateral directions and diagonal directions." Thus, *Koitabashi et al.* discloses positioning the dot based on the presence or absence of original dot data and not based on the size of the dot in the printing as recited in Claim 9.

With respect to Claim 17, the Examiner alleges that Figure 43 of *Koitabashi et al.* discloses a method of controlling printing in an inkjet printer which ejects a plurality of kinds of ink droplets of different sizes from a single nozzle, and determines whether or not control of the printing position of a dot is necessary in controlling the timing of printing the dot if it is determined necessary.

Claim 17 has been amended to more clearly define that a printer ejects a plurality of kinds of ink droplets of different sizes including image forming droplets

and smoothing droplets from a single nozzle, and that the necessity of positioning a smoothing dot is determined and the timing of printing the smoothing dot is controlled if it is determined necessary.

As noted above, Figure 43 fails to disclose ejecting image forming droplets and smoothing droplets from a single nozzle and therefore does not anticipate the invention of Claim 17. In addition, Figure 43 fails to disclose the step of determining whether or not control of the printing position of a dot is necessary and controlling the timing of the printing dot if it is determined necessary. The Examiner specifically references Figure 46b of *Koitabashi et al.* to disclose this feature, however, Figure 46b discloses setting "the timing for the large ejection amount mode by the initial setting." See column 27, lines 60-61. Thus, Figure 46 discloses initially setting the timing of the printing and the ejection size, not determining if controlling the position of the dot and timing is necessary. Thus, Figures 43 and 46b do not disclose at least these features together with the other features recited in Claim 17.

With respect to Claims 24, 30 and 31, it is respectfully pointed out that each recite features directed to ejecting both smoothing droplets and image forming droplets from the same nozzle. For example, Claim 24 defines a nozzle for ejecting ink droplets of different sizes to form an image on a recording medium with image forming dots and smoothing dots; Claim 30 defines ejecting ink droplets from the same nozzle so that smoothing dots are arranged around the edge of image forming dots; and Claim 31 defines at least one nozzle capable of ejecting image forming dots and smoothing dots.

Koitabashi et al. does not disclose at least the feature recited in Claims 24, 30 and 31 directed to ejecting image forming droplets and smoothing droplets from the

same nozzle together with the other claimed features. For example, as noted above, in column 25, lines 47-49 (emphasis added), *Koitabashi et al.* discloses that Figure 43 is a diagrammatic illustration showing "a mode to perform smoothing by employing the ejection openings other than the ejection openings used for printing in 360 DPI or 240 DPI, with respect to the dot data of 360 DPI or 240 DPI." Thus, Figure 43 only discloses ejecting same-type ink droplets from a single nozzle, rather than ejecting both image forming droplets and smoothing droplets from a single nozzle. Therefore, Figure 43 does not disclose the invention recited in Claim 24, 30 or 31.

For at least the reasons stated above, Claims 1, 9, 17, 24, 30, and 31 are allowable, and dependent Claims 2-3, 5-8, 10-11, 13-16, 20-23, 25-29 and 32-33 are also allowable at least by virtue of their dependence upon allowable independent Claims. Thus, Applicants respectfully request that the final rejections be withdrawn.

In the event that there are any questions concerning this response, or the application in general, the Examiner is respectfully urged to telephone the undersigned attorney so that prosecution of the application may be expedited.

Respectfully submitted,

BURNS, DOANE, SWECKER & MATHIS, L.L.P.

Date: April 26, 2004

By: William C Rowland

William C. Rowland
Registration No. 30,888

P.O. Box 1404
Alexandria, Virginia 22313-1404
(703) 836-6620